



SEQUENCE LISTING

<110> Cambridge University Technical Services

<120> A novel family of beta sub-unit proteins from a voltage gated sodium channel nucleic acids encoding them and therapeutic or diagnostic uses thereof

<130> 674558-2001

<140> 09/997,579

<141> 2001-10-15

<150> PCT/EP00/01783

<151> 2000-02-24

<150> 60,129,473

<151> 2000-02-24

<160> 49

<170> PatentIn version 3.2

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<211> 215

<212> PRT

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Thr Glu Ala Val Gln Gly Asn Pro Met Lys Leu Arg Cys Ile Ser Cys
35 40 45

Met Lys Arg Glu Glu Val Glu Ala Thr Thr Val Val Glu Trp Phe Tyr
50 55 60

Arg Pro Glu Gly Gly Lys Asp Phe Leu Ile Tyr Glu Tyr Arg Asn Gly
65 70 75 80

His Gln Glu Val Glu Ser Pro Phe Gln Gly Arg Leu Gln Trp Asn Gly
85 90 95

Ser Lys Asp Leu Gln Asp Val Ser Ile Thr Val Leu Asn Val Thr Leu
100 105 110

Asn Asp Ser Gly Leu Tyr Thr Cys Asn Val Ser Arg Glu Phe Glu Phe
115 120 125

Glu Ala His Arg Pro Phe Val Lys Thr Thr Arg Leu Ile Pro Leu Arg
130 135 140

Val	Thr	Glu	Glu	Ala	Gly	Glu	Asp	Phe	Thr	Ser	Val	Val	Ser	Glu	Ile
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Met	Ile	Tyr	Cys	Tyr	Arg	Lys	Val	Ser	Lys	Ala	Glu	Glu	Ala	Ala	Gln
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Arg	Pro	Glu	Gly	Gly	Lys	Asp	Phe	Leu	Ile	Tyr	Glu	Tyr	Arg	Asn	Gly
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His	Gln	Glu	Val	Glu	Ser	Pro	Phe	Gln	Gly	Arg	Leu	Gln	Trp	Asn	Gly
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Ser	Lys	Asp	Leu	Gln	Asp	Val	Ser	Ile	Thr	Val	Leu	Asn	Val	Thr	Leu
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Met	Met	Tyr	Ile	Leu	Leu	Val	Phe	Leu	Thr	Leu	Trp	Leu	Leu	Ile	Glu
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Met	Ile	Tyr	Cys	Tyr	Arg	Lys	Val	Ser	Lys	Ala	Glu	Glu	Ala	Ala	Gln

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Tyr Trp Val Ser Val Cys Phe Pro
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1           5           10           15
Tyr Trp Val Arg Val Cys Phe Pro
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Tyr Trp Val

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Tyr Trp Val

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Met Pro Ala Phe Asn Arg Leu Leu Pro Leu Ala Ser
1 5 10

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Leu Pro Leu Ala Ser Leu Val Leu Ile Tyr Trp Val Arg Val Cys
1 5 10 15

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<400> 13

Ser Val Cys Phe Pro
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<213> rat

<400> 14

Arg Val Cys Phe Pro
1 5

<210> 15
<211> 11
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<400> 16

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Tyr	Trp	Val	Ser	Val	Cys	Phe	Pro	Val	Cys	Val	Glu	Val	Pro	Ser	Glu
			20					25					30		
Thr	Glu	Ala	Val	Gln	Gly	Asn									
			35												

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Met	Pro	Ala	Phe	Asn	Arg	Leu	Leu	Pro	Leu	Ala	Ser	Leu	Val	Leu	Ile
1				5					10					15	
Tyr	Trp	Val	Arg	Val	Cys	Phe	Pro	Val	Cys	Val	Glu	Val	Pro	Ser	Glu
			20					25					30		
Thr	Glu	Ala	Val	Gln	Gly	Asn									
			35												

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Cys	Val	Glu	Val	Pro	Ser	Glu	Thr	Glu
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<213> Homo sapiens

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Glu

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<213> Rat

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Trp	Val	Arg	Val	Cys	Phe	Pro	Val	Cys	Val	Glu	Val	Pro	Ser	Glu	Thr
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Glu

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Tyr	Trp	Val	Ser	Val	Cys	Phe	Pro	Val	Cys	Val	Glu	Val	Pro	Ser	Glu
		20						25					30		

Thr	Glu	Ala	Val	Gln	Gly	Asn	Pro	Met	Lys	Leu	Arg	Cys	Ile	Ser	Cys
	35						40					45			

Met	Lys	Arg	Glu	Glu	Val	Glu	Ala	Thr	Thr	Val	Val	Glu	Trp	Phe	Tyr
	50					55					60				

Arg	Pro	Glu	Gly	Gly	Lys	Asp	Phe	Leu	Ile	Tyr	Glu	Tyr	Arg	Asn	Gly
65					70					75					80

His	Gln	Glu	Val	Glu	Ser	Pro	Phe	Gln	Gly	Arg	Leu	Gln	Trp	Asn	Gly
			85						90					95	

Ser	Lys	Asp	Leu	Gln	Asp	Val	Ser	Ile	Thr	Val	Leu	Asn	Val	Thr	Leu
			100					105					110		

Asn	Asp	Ser	Gly	Leu	Tyr	Thr	Cys	Asn	Val	Ser	Arg	Glu	Phe	Glu	Phe
		115					120					125			

Glu	Ala	His	Arg	Pro	Phe	Val	Lys	Thr	Thr	Arg	Leu	Ile	Pro	Leu	Arg
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Val	Thr	Glu	Glu	Ala	Gly	Glu	Asp	Phe	Thr	Ser	Val	Val	Ser	Glu
145					150					155				

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Met	Pro	Ala	Phe	Asn	Arg	Leu	Leu	Pro	Leu	Ala	Ser	Leu	Val	Leu	Ile
1				5					10					15	
Tyr	Trp	Val	Arg	Val	Cys	Phe	Pro	Val	Cys	Val	Glu	Val	Pro	Ser	Glu
			20					25					30		
Thr	Glu	Ala	Val	Gln	Gly	Asn	Pro	Met	Lys	Leu	Arg	Cys	Ile	Ser	Cys
		35					40					45			
Met	Lys	Arg	Glu	Glu	Val	Glu	Ala	Thr	Thr	Val	Val	Glu	Trp	Phe	Tyr
	50						55				60				
Arg	Pro	Glu	Gly	Gly	Lys	Asp	Phe	Leu	Ile	Tyr	Glu	Tyr	Arg	Asn	Gly
65					70					75					80
His	Gln	Glu	Val	Glu	Ser	Pro	Phe	Gln	Gly	Arg	Leu	Gln	Trp	Asn	Gly
				85					90					95	
Ser	Lys	Asp	Leu	Gln	Asp	Val	Ser	Ile	Thr	Val	Leu	Asn	Val	Thr	Leu
			100					105					110		
Asn	Asp	Ser	Gly	Leu	Tyr	Thr	Cys	Asn	Val	Ser	Arg	Glu	Phe	Glu	Phe
		115					120					125			
Glu	Ala	His	Arg	Pro	Phe	Val	Lys	Thr	Thr	Arg	Leu	Ile	Pro	Leu	Arg
	130					135					140				
Val	Thr	Glu	Glu	Ala	Gly	Glu	Asp	Phe	Thr	Ser	Val	Val	Ser	Glu	
145					150					155					

<210> 24
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<212> PRT
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<400> 24

Thr	Thr	Arg	Leu	Ile	Pro	Leu	Arg	Val	Thr
1				5				10	

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Cys	Met	Lys	Arg	Glu	Glu	Val	Glu	Ala	Thr	Thr	Val	Val
1				5					10			

<210> 26
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<400> 26

Tyr Glu Tyr Arg Asn Gly His Gln Glu Val
1 5 10

<210> 27
<211> 12
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<213> Homo sapiens

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Trp Asn Gly Ser Lys Asp Leu Gln Asp Val Ser Ile
1 5 10

<210> 28
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Ser Arg Glu Phe Glu Phe Glu Ala His Arg Pro Phe Val Lys
1 5 10

<210> 29
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Val Glu Ser Pro Phe Gln Gly Arg Leu
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<210> 30
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Glu Glu Ala Gly Glu Asp Phe Thr Ser Val Val Ser Glu
1 5 10

<210> 31
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<212> PRT
<213> Homo sapiens

<400> 31

Arg Lys Val Ser Lys Ala Glu Glu Ala Ala Gln Glu Asn Ala Ser Asp
1 5 10 15

Tyr Leu Ala Ile Pro Ser Glu Asn Lys Glu Asn Ser Ala Val Pro Val
20 25 30

Glu Glu

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<400> 32

Asp Tyr Leu Ala Ile Pro Ser
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<210> 33
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<212> DNA
<213> Artificial sequence

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<223> primer used to amplify nucleic acid sequences encoding b3 subunit
nucleic acid of rat or human

<400> 33
atgcctgcct tcaacagatt gc 22

<210> 34
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<223> primer used to amplify nucleic acid sequences encoding b3 subunit
nucleic acid of rat or human

<400> 34
ttattcctcc acaggtacca 20

<210> 35
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<223> antisense radiolabelled oligonucleotide probe used in the in situ hybridization experiments

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ggggaagcaa tctgttgaag gcaggcatct tttccaccgt aagcg

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<210> 36

<211> 18

<212> DNA

<213> Artificial sequence

<220>

<223> primer used to amplify nucleic acid encoding a b3 sub-unit from a voltage-gated sodium channel

<400> 36

ggtgaagcaa tatggccg

18

<210> 37

<211> 18

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<213> Artificial sequence

<220>

<223> reverse primer (nucleotides 1317-1300) corresponding to unique sequence in the 3' untranslated region of each b subunit

<400> 37

agatgaggcc cagaaccc

18

<210> 38

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<220>

<223> forward primer (nucleotides 1942-1961) corresponding to unique sequence in the 3' untranslated region of each b subunit

<400> 38

ggaagctgac tgccacagat

20

<210> 39

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<220>

<223> reverse primer (nucleotides 2209-2190) corresponding to unique sequence in the 3' untranslated region of each b subunit

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 cctgggggac ttacaaaca 20

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 sequence in the 3' untranslated region of each b subunit

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 <223> rat b1 (nucleotides 1296-1252) primer used in immobilization of
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<400> 42
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<210> 43
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 <223> rat a IIA (nucleotides 1659-1615) primer used in immobilization
 of nucleic acid probe on a substrate

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<400> 44

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20          25          30

Gly Met Thr Phe Lys Ile Leu Cys Ile Ser Cys Lys Arg Arg Ser Glu
35          40          45

Thr Thr Ala Glu Thr Phe Thr Glu Trp Thr Phe Arg Gln Lys Gly Thr
50          55          60

Glu Glu Phe Val Lys Ile Leu Arg Tyr Glu Asn Glu Val Leu Gln Leu
65          70          75          80

Glu Glu Asp Glu Arg Phe Glu Gly Arg Val Val Trp Asn Gly Ser Arg
85          90          95

Gly Thr Lys Asp Leu Gln Asp Leu Ser Ile Phe Ile Thr Asn Val Thr
100         105         110

Tyr Asn His Ser Gly Asp Tyr Glu Cys His Val Tyr Arg Leu Leu Phe
115         120         125

Phe Asp Asn Tyr Glu His Asn Thr Ser Val Val Lys Lys Ile His Leu
130         135         140

Glu Val Val Asp Lys Ala Asn Arg Asp Met Ala Ser Ile Val Ser Glu
145         150         155         160

Ile Met Met Tyr Val Leu Ile Val Val Leu Thr Ile Trp Leu Val Ala
165         170         175

Glu Met Val Tyr Cys Tyr Lys Lys Ile Ala Ala Ala Thr Glu Ala Ala
180         185         190

Ala Gln Glu Asn Ala Ser Glu Tyr Leu Ala Ile Thr Ser Glu Ser Lys
195         200         205

Glu Asn Cys Thr Gly Val Gln Val Ala Glu
210         215
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 35 40 45
 Ser Ile Phe His Tyr Ala Lys Gly Gln Pro Tyr Ile Asp Glu Val Gly
 50 55 60
 Thr Phe Lys Glu Arg Ile Gln Trp Val Gly Asp Pro Ser Trp Lys Asp
 65 70 75 80
 Gly Ser Ile Val Ile His Asn Leu Asp Tyr Ser Asp Asn Gly Thr Phe
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 100 105 110
 Val Thr Leu Tyr Val Phe Glu
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 <213> Homo sapiens

<400> 46

Glu Gly Gly Lys Asp Phe Leu Ile
 1 5

<210> 47
 <211> 34
 <212> PRT
 <213> Rat

<400> 47

Arg Lys Val Ser Lys Ala Glu Glu Ala Ala Gln Glu Asn Ala Ser Asp
 1 5 10 15
 Tyr Leu Ala Ile Pro Ser Glu Asn Lys Glu Asn Ser Val Val Pro Val
 20 25 30

Glu Glu

<210> 48
 <211> 265
 <212> DNA
 <213> Rattus norvegicus


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<400> 48
tcaggaagtg ccccaggtgt cccaacacat ccattctttc tattcatcaa ccaccaaccc 60
aatgtgagat tttcacctga cttccgaact ctatcagaac tctacacatc tttaccttgc 120
ctgaaccgaa gagccaacat ctatctctac acggactaaa cctcactctg ttcttgcttc 180
caaccaagta actcccaact taactagagt tgttccctat gttccaaatg atttagacaa 240
gtactggaga gtagtattac ctctg 265

```

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<210> 49
<211> 471
<212> DNA
<213> homo sapiens

```

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<220>
<221> misc_feature
<222> (138)..(138)
<223> n is a, c, g, or t

```

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<400> 49
gaattcggcc ttcattggcct accagaagat gcctgccttc aatagattgt tccccctggc 60
ttctctcgtg cttatctact gggtcagtgt ctgcttcctt gtgtgtgtgg aagtgccctc 120
ggagacggag ccgtgcangg caaccccatg aagctgcgct gcatctcctg catgaagaga 180
gaggaggtgg aggccaccac ggtggtggaa tggttctaca ggcccgaggg cggtaaagat 240
ttccttattt acgagtatcg gaatggccac caggaggtgg agagcccctt tcaggggagc 300
ctgcagtggg atggcagcaa ggacctgcag gacgtgtcca tcaactgtgct caacgtcact 360
ctgaacgact ctggcctcta cacctgcaat gtgtcccggg agtttgagtt tgaggcgcat 420
cggccctttg tgaagacgac gcggctgac cccctaagag tcggactcga g 471

```